

B2 The invention will now be described in more detail with reference to the drawing,
wherein:

Figure 1 is a map of vector RPR9-IL 4-Y124 4327.--

and then on the very next line insert the following heading at the left-hand margin:

--DESCRIPTION OF THE PREFERRED EMBODIMENTS--.

IN THE CLAIMS:

Cancel claims 1 and 2 and substitute:

1
--3. A mutant human interleukin-4 (hIL-4) protein consisting of the amino acid sequence of wild-type hIL-4 with two modifications, wherein the first modification is selected from the group consisting of the replacement of one or more of the amino acids occurring in the wild-type hIL-4 protein at positions 121, 124 or 125 with another natural amino acid, and the second modification is at least one modification selected from the group consisting of:

- B3
- a) the modification of the N-terminus therein;
 - b) the modification of the C-terminus therein;
 - c) the deletion of potential glycosylation sites therein;
and/or
 - d) the coupling of the protein to a non-protein polymer;

said mutant hIL-4 protein being an antagonist or partial agonist of wild-type hIL-4.--

~~2~~ 2. A mutant hIL-4 protein according to claim ~~1~~ 1, which consists of the amino acid sequence of wild-type hIL-4 with two modifications, wherein the first modification is selected from the group consisting of the replacement of one or more of the amino acids occurring in the wild-type hIL-4 protein at positions 121, 124 or 125 by another natural amino acid, and the second modification is at least one modification selected from the group consisting of:

- B3
- a) the modification of the N-terminus therein by the deletion or insertion of one or more amino acids;
 - b) the modification of the C-terminus therein by the deletion or insertion of one or more amino acids;
 - c) the deletion of potential glycosylation sites; and/or
 - d) the coupling of the protein to a non-protein polymer selected from the group consisting of polyethylene glycol, polypropylene glycol and polyoxyalkylenes;

said mutant hIL-4 protein being an antagonist or partial agonist of wild-type hIL-4.--

~~3~~ 3. A mutant hIL-4 protein according to claim ~~2~~ 2, which consists of the amino acid sequence of wild-type hIL-4 with two modifications, wherein the first modification is selected from the group consisting of the replacement of one or

more of the amino acids occurring in the wild-type hIL-4 protein at positions 121, 124 or 125 is replaced by another natural amino acid, and the second modification comprises the modification of the N-terminus therein by the insertion before the natural N-terminal histidine residue of an amino acid selected from the group consisting of alanine, glycine, proline, serine, threonine and valine, said mutant hIL-4 protein being an antagonist or partial agonist of wild-type hIL-4.--

~~4~~
~~6.~~ A mutant hIL-4 protein according to claim ~~5~~³, wherein said second modification further comprises:

- B³
- a) the deletion of the potential glycosylation sites at positions 38 and/or 105 by replacement of asparagine in these positions by aspartic acid; and/or
 - b) the coupling of the protein to polyethylene glycol.--

~~5~~
~~7.~~ A therapeutic composition comprising:

- a) a mutant human interleukin-4 (hIL-4) protein according to claim 3; and
- b) a physiologically acceptable carrier.--

~~6~~
~~8.~~ A therapeutic composition comprising:

- a) a mutant human interleukin-4 (hIL-4) protein according

to claim ~~7~~²; and

b) a physiologically acceptable carrier.--

~~7~~
--9.

A therapeutic composition comprising:

a) a mutant human interleukin-4 (hIL-4) protein according to claim ~~5~~³; and

b) a physiologically acceptable carrier.--

~~8~~
--10.

A therapeutic composition comprising:

a) a mutant human interleukin-4 (hIL-4) protein according to claim ~~6~~⁴; and

b) a physiologically acceptable carrier.--

~~9~~
--11.

A method of antagonizing or partially agonizing the effect of human interleukin-4 (hIL-4) comprising contacting cells expressing the hIL-4-receptor with an antagonistic or partially agonistic effective amount of a mutant hIL-4 protein according to claim ~~3~~¹--

~~10~~
--12.

A method of antagonizing or partially agonizing the effect of human interleukin-4 (hIL-4) comprising contacting cells expressing the hIL-4-receptor with an antagonistic or partially agonistic effective amount of a mutant hIL-4 protein according to claim ~~4~~²--